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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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12/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/761,542		HUNT, JEFFREY H.	
	Examiner		Art Unit	
	Edna Wong		1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-38 is/are rejected.
- 7) ☒ Claim(s) 1-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This is in response to the Amendment dated November 12, 2007. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Response to Arguments

Claim Rejections - 35 USC § 112

Claims **4, 7-12 and 27-38** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regards to claims 4, 7-11 and 27-38, the rejection under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicant's amendment.

With regards to claim 12, the rejection under 35 U.S.C. 112, second paragraph, is as applied in the Office Action dated August 14, 2007 and incorporated herein. The rejection has been maintained for the following reason:

Claim 12

line 5, "the laser pulse width" lacks antecedent basis. There is no ***laser*** claimed.

Also, why does " τ_p " have two different definitions in the same formula? See claim 38, lines 5-6.

Claim Rejections - 35 USC § 103

I. Claims **1 and 3-12** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Early** (US Patent No. 5,756,924) in combination with **Vorob'ev et al.** ("Laser Pulse Combustion of Solid Fuel", Pis'ma v Zhurnal Tekhnicheskoi Fiziki (1990), Vol. 16, No. 19, pp. 79-83).

The rejection of claims 1 and 3-12 under 35 U.S.C. 103(a) as being unpatentable over Early in combination with Vorob'ev et al. has been withdrawn in view of Applicant's amendment.

II. Claim **2** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Early** (US Patent No. 5,756,924) in combination with **Vorob'ev et al.** ("Laser Pulse Combustion of Solid Fuel", Pis'ma v Zhurnal Tekhnicheskoi Fiziki (1990), Vol. 16, No. 19, pp. 79-83) as applied to claims 1 and 3-12 above, and further in view of **Zhang** ("Laser-Induced Ignition of Pulverized Fuel Particles", Combustion and Flame (1992), Vol. 90, pp. 134-142).

The rejection of claim 2 under 35 U.S.C. 103(a) as being unpatentable over Early in combination with Vorob'ev et al. as applied to claims 1 and 3-12 above, and further in view of Zhang has been withdrawn in view of Applicant's amendment.

III. Claims **27 and 29-38** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Early** (US Patent No. 5,756,924) in combination with **Vorob'ev et al.**

("Laser Pulse Combustion of Solid Fuel", Pis'ma v Zhurnal Tekhnicheskoi Fiziki (1990), Vol. 16, No. 19, pp. 79-83).

The rejection of claims 27 and 29-38 under 35 U.S.C. 103(a) as being unpatentable over Early in combination with Vorob'ev et al. has been withdrawn in view of Applicant's amendment.

IV. Claim **28** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Early** (US Patent No. 5,756,924) in combination with **Vorob'ev et al.** ("Laser Pulse Combustion of Solid Fuel", Pis'ma v Zhurnal Tekhnicheskoi Fiziki (1990), Vol. 16, No. 19, pp. 79-83) as applied to claims 27 and 29-38 above, and further in view of **Zhang** ("Laser-Induced Ignition of Pulverized Fuel Particles", Combustion and Flame (1992), Vol. 90, pp. 134-142).

The rejection of claim 28 under 35 U.S.C. 103(a) as being unpatentable over Early in combination with Vorob'ev et al. as applied to claims 27 and 29-38 above, and further in view of Zhang has been withdrawn in view of Applicant's amendment.

Response to Amendment

Claim Objections

Claims **1, 7, 9, 27, 33 and 35** are objected to because of the following informalities:

Claim 1

line 7, “a solid fuel” should be amended to -- **the** solid fuel -- because this is the same as the solid fuel recited in claim 1, line 5.

If they are not the same, then what is the difference/ relationship between solid fuels?

Claim 7

lines 3-4, “a combustive reaction” should be amended to -- **the** combustive reaction -- because this is the same as the combustive reaction recited in claim 1, line 7.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

Claim 9

line 4, “a combustive reaction” should be amended to -- **the** combustive reaction -- because this is the same as the combustive reaction recited in claim 1, line 7.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

Claim 27

line 6, “a combustive reaction” should be amended to -- **the** combustive reaction -- because this is the same as the combustive reaction recited in claim 27, lines 1-2.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

line 7, "**a** combustive reaction" should be amended to -- **the** combustive reaction -- because this is the same as the combustive reaction recited in claim 27, lines 6.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

lines 7-8, "**a** solid fuel" should be amended to -- **the** solid fuel -- because this is the same as the solid fuel recited in claim 27, line 6.

If they are not the same, then what is the difference/ relationship between solid fuels?

Claim 33

line 3, "**a** combustive reaction" should be amended to -- **the** combustive reaction -- because this is the same as the combustive reaction recited in claim 27, lines 6.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

Claim 35

line 3, "**a** combustive reaction" should be amended to -- **the** combustive reaction

-- because this is the same as the combustive reaction recited in claim 27, lines 6.

If they are not the same, then what is the difference/ relationship between the combustive reactions?

Appropriate correction is required.

Applicant's cooperation is requested in correcting any informalities of which Applicant may become aware of in the claims.

Claim Rejections - 35 USC § 112

Claims **27-38** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: between the single combustion chamber and the solid fuel.

Claim 27

lines 4-5, recite " directing ***the pulsed optical signal*** to a plurality of ignition points ***within a single combustion chamber***".

Claim 27, line 2, recite "***a solid fuel*** contained ***in a combustion chamber***".

There is no structural cooperative relationships claimed between the pulsed optical signal within the single combustion chamber and the solid fuel in the combustion

chamber.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

Claims **1-12** define over the prior art of record because the prior art does not teach or suggest a method for initiating and sustaining a combustive reaction in a solid fuel, said method comprising the steps of generating, directing, modulating and modulating as presently claimed, esp., the step of directing the pulsed optical signal to a plurality of ignition points within a single combustion chamber containing a solid fuel.

Claims **27-38** define over the prior art of record because the prior art does not teach or suggest a method for initiating and sustaining a combustive reaction of a solid fuel contained in a combustion chamber, said method comprising the steps of generating, directing, initiating and sustaining as presently claimed, esp., the step of directing the pulsed optical signal to a plurality of ignition points within a single combustion chamber containing a solid fuel.

The prior art does not contain any language that teaches or suggests the above. *Early* does not teach directing the pulsed optical signal to a plurality of ignition points within a single combustion chamber containing a solid fuel. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 1-12, 27, 33 and 35 would be allowable if rewritten or amended to overcome the claim objection(s) set forth in this Office action.

Claims 27-38 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

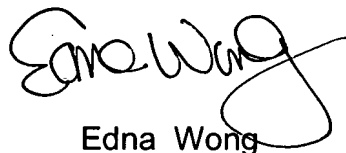
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Edna Wong", with a stylized, flowing script.

Edna Wong
Primary Examiner
Art Unit 1795

EW
December 3, 2007